

**EXPEDITED PROCESSING
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IN THE DRAWINGS

Applicant submits herewith an amended Figure 2 and respectfully requests the Examiner's approval.

Subject to the Examiner's approval and upon receipt of a Notice of Allowance, Applicant will submit corrected formal drawings.

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As a preliminary matter, in reviewing the application in preparation for responding to the latest Office Action, Applicant noted a clerical error in Figure 2. Particularly, decision box 237 was missing the YES and NO identifiers for the two alternative routes out of the box and also lacked the line corresponding to the NO decision. Applicant submits herewith a corrected copy of Figure 2 including these missing elements. This amendment does not introduce new matter since the amended drawing merely conforms exactly to the written description, and particularly, page 18, lines 13-22.

The Final Office Action dated March 10, 2005 contains prior art rejections of all pending claims that are identical to the previous prior art rejections. In particular, the Office rejected claims 11-13, 16, and 17 under 35 U.S.C. §103(a) as obvious over Abramson in view of Feit, claim 14 as obvious over Abramson and Feit further in view of Prabandham, claims 1-10, 15, 18, 22, and 23 as obvious over Abramson, Feit, and Prabandham and further in view of Ng. Finally, it appears that the Office intended to reject claim 17 as obvious over Abramson and Feit further in view of Prabandham.

Applicant stands by the arguments it previously presented as to why the present claims distinguish over the prior art identified in the rejections. Thus, since the rejections and the primary arguments against them are essentially unchanged from the previous Office Action and Applicant's response, they will not be repeated herein. One can refer to the previous Office Action and Applicant's response thereto as needed.

Rather, Applicant will herein address the issues raised in the **Response To Arguments** section of the new Office Action. In that section, the Office asserted that Applicant's arguments filed on November 17, 2004 have been fully considered but are not deemed persuasive. The Response to Arguments is broken down into three

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sections. In the first section, the Office asserted that Applicant argued against the references individually and that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references.

Applicant does not understand this response. Applicant's argument, as will be elaborated upon further below, focused entirely on the impropriety of the proposed combination. Applicant did not attack the references individually, but properly discussed the combination. Accordingly, this reply actually is non-responsive to Applicant's arguments.

Second, the Office asserted that Applicant argued that the Abramson reference does not disclose writing session data to the back-up server. However, this simply is not accurate. Applicant never made such an argument. In fact, Applicant freely conceded that Abramson discloses writing session data to the back-up server. In fact, writing session data to the back-up server is expressly mentioned in the background section of the present application (specification, page 7, lines 16-19). Applicant stated only that Abramson did not teach writing session data to the back-up server at designate intervals as claimed in the claims of the present application, a fact that the Office itself expressly conceded. In view of that shortcoming, the Office cited the Feit reference. Accordingly, this response also is completely non-responsive to Applicant's arguments.

Third and finally, the Office asserted that Applicant argued that Abramson does not disclose polling of application servers or selectively writing HttpSession objects. The Office asserted that column 3, lines 24-30 of Abramson disclosed polling of each application server for status, which also inherently includes session data. This issue pertains only to dependent claim 17 and is a minor issue.

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The underlined portion of the Office's assertion is the key portion since claim 17 recites "polling said session objects stored in said memory local to said JVMs to determine if they have been updated since the last time step (2) was performed". The Office's assertion that the data described as being polled in Abramson inherently includes session data is demonstrably false. Particular, as previously noted, this portion of Abramson discusses load distribution among servers and has nothing whatsoever to do with session data. Accordingly, there is absolutely no reason to believe that the status information for each application server that Abramson is polling inherently includes session data and every reason to believe that it does not include such information. However, one need not rely on inference to determine that the Office's assertion is not true.

The cited portion of Abramson discloses that the status and load information that is polled is shown in Figure 2. A review of Figure 2 shows that, in fact, there is no session data. Instead, there is simply a status column (indicating that the status of the server is either "okay" or "not okay") and a probability column, which:

provides a set of probabilities, based on the status and load information, as to whether to select each application server 24. A more heavily loaded application server receives a lower probability (for example, Application Server No. 3, shown in FIG. 2) and is less likely to be selected. (Abramson, col. 3, lines 29-33).

Even furthermore, even if one were to improperly assume that this data may be based on session data, it would still be irrelevant. Claim 17 does not recite polling the session objects to obtain session data. Rather, it recites polling the session objects "to determine if they have been updated since the last time step (2) was performed." Thus, this is a totally different recitation than what the Office seems to be asserting, in any event.

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Thus, of the three arguments presented by the Office in the **Response To Arguments** section of the Office Action, two are completely irrelevant since they address alleged arguments that Applicant actually never made. The Office's third argument pertains merely to one dependent claim of minor significance to the overall set of rejections and, in any event, is demonstrably false.

Thus, in essence, the Office has not actually responded to any of Applicant's arguments.

Accordingly, the primary issue is still the propriety of the proposed combination of Abramson and Feit.

The Present Invention

Web sites often divide the tasks of servicing requests into a three tier system with a different server (or plurality of servers) to handle each tier. The first, front-end tier is the http server(s) that processes the http aspects of a transaction. The second tier is the application server(s). The application servers handle the content specific processing for the transactions. The third tier comprises database server(s) that store the data needed to process requests. Within each tier, the Web site server system may have multiple, redundant servers. Particularly, any given server can only service so many requests in a given period. If the Web site expects more traffic than a single server can handle, it may maintain multiple servers which can serve the same content. In such situations, since http is a connectionless protocol, one request from a particular client can be directed to one application server while the next request from the same client machine might be directed to a different application server. Accordingly, a means

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must be provided for the various servers to access the session data developed by another, redundant server.

A common way of enabling such sharing of http session data is by use of a database server that is accessible to the plurality of application servers for storing session data. Particularly, an application server will store session data in local memory, but will also write a copy of the session data to the session database. If a different server services a request from a client, that different server can go to the database and read the session data for the corresponding session.

In the prior art, the session data for a session is updated in both the local memory and the database each time a request causes a change in the data. Writing to the database is a relative expensive process in terms of consumption of processing power and time. Accordingly, the present invention is designed to reduce the number of writes to an http session database in order to conserve system resources.

The present invention pertains to a method and apparatus for updating a session database that is accessible by multiple servers in a Web environment. In accordance with the invention, each server maintains http session data in a local memory. This copy of the http session data will be updated every time there is a change in the session data. The servers automatically write at designated times a copy of the session data to a common database shared by all of the servers. In a preferred embodiment of the invention, the designated time is periodic. In alternate embodiments, the servers may write the session data to the database after a specified number of requests in that session have been received. In another embodiment, the servers may write the session

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data to the database after a specified number of changes to the session data have been made.

Additional Response To Rejections

Although Feit is the secondary reference in all of the rejections, Feit is the significant reference in this analysis. Particularly, as previously noted, Abramson largely discloses that which Applicant has already admitted in the Background Of The Invention section of this application as being prior art. The Office is not asserting that Abramson teaches anything more. The present invention resides largely in when session data is written back to the database. The Office is relying exclusively on Feit as teaching this feature.

MPEP §2143 lists three requirements for a proper rejection based on obviousness, namely:

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The first and third requirements are lacking in the present case, i.e., (a) some suggestion or motivation to combine the referenced teachings and (b) the cited art teaching or suggesting all of the claim limitations. Particularly, the Office relies on the abstract of Feit and column 6, lines 7-13. Particularly, the Office asserts that Feit's abstract teaches a session control for http communications over the Internet and that column 6, lines 7-13 teach the use of time intervals.

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While Feit generally relates to http session control, Feit apparently was developed prior to the existence of the type of Java sessions or session data that is the subject of the present invention. In fact, Feit discusses at great length that there is no technology available for the Internet for maintaining anything like the session data that is the subject of the present invention. (See column 1, line 65 – column 2, line 51 of Feit). In fact, Feit's "session" means something totally different than in the present application. In Feit's terminology, an Internet "session" comprises a single http request and response (column 2, lines 15-17).

The disclosure in Feit that the Office is relying upon is the "heart beat" feature. Particularly, when a client requests a page from a server, the server delivers the page including extra code that will cause the client to send a heart beat back to the server at defined time intervals. In response to receipt of the heart beat, the server sends a message back to the client acknowledging the heart beat. This continues until the client closes the page. The server keeps a record of the number of heart beats it receives from that page. When the server realizes that it has not received an expected "heart beat", it assumes the session has been closed. It then determines the approximate length of the session by counting the number of heart beats it received from the page.

This has virtually nothing to do with the present invention.

The claim recitation at issue recites "writ[ing] to said data base, a copy of said HttpSession data for each said http session at a designated time that is a function of a predetermined time interval since a last write to said database of HttpSession object

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data for said http session". Previous to this portion of the claim, the claim recites that the database is "accessible by each of the JVM's"

Thus, one way of looking at the present situation is that there must be some teaching in the prior art of writing HttpSession data to the database at a designated time that is a function of a predetermined time interval since a last write to said database of HttpSession object data for said http session. There is absolutely nothing in Abramson or Feit that teaches or suggests such a feature.

The Office essentially has conceded that Abramson does not teach it.

Feit clearly does not teach this. Feit's heart beat does not have anything to do with writing to a database. The heart beat is sent from the client to the server, not from the local server to the back end database server.

Feit's heartbeat has nothing to do with HttpSession data. The heart beat is a ping from the client to the front-end server.

Feit's heartbeat has nothing to do with copying data to a database. The local server simply receives and counts up the heart beats.

The Office might as well have cited an alarm clock instead of Feit since the only relevant teaching in Feit that the Office appears to be relying on is that it does something (anything) at predetermined intervals. It cannot reasonably be asserted that merely teaching doing anything at predetermined time intervals can be combined with another reference that teaches writing to a database a copy of HttpSession data using a completely different schedule to result in a proper obviousness rejection. This turns the obviousness inquiry on its head.

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It cannot rationally be said that a person of ordinary skill in the art having knowledge of Abramson would be motivated by Feit to change the timing of the copying of HttpSession data from the local cache to the back-end database. Feit's heart beat has nothing to do with when to copy HttpSession data from a local cache to a back end database. In essence, in order to arrive at the present invention, the person of ordinary skill in the art would have to (1) look at Feit's teaching of sending a heart beat from the client machine to the server at a predetermined interval, (2) decide to completely discard this feature other than the concept of having a fixed time interval, and (3) decide to apply this fixed time interval concept to replace the normal protocol for copying HttpSession data from the local cache of a Java Virtual Machine to a back-end database. It should be clear that this is a ridiculous scenario. It should also be clear that, in order to arrive at the present invention, this ordinarily skilled artisan would need to discard every teaching of Feit except the teaching of using a fixed interval to do something totally different and substitute that concept into a very specific portion of Abramson that has absolutely nothing to do with Feit's heart beat.

The combination of the teachings of Abramson and Feit that would be necessary to arrive at the present invention simply is not suggested in the prior art. The Office has clearly used impermissible hindsight in order to pick and choose features from two different references without any rationale provided by the prior art for doing so.

Specific Claim Recitations That Distinguish Over The Prior Art

Referring to independent claim 11, Abramson in combination with Feit does not teach or suggest "writing a copy of said data for each said session stored in said local

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memory into a central memory accessible to all servers of said server system at designated times, said designated times being a function of AP determined time interval since a last write to said database of data for said sessions”.

Since claims 12, 13, 16, and 17 depend from claim 11, they distinguished over the prior art for at least the same reasons.

The Office rejected dependent claim 14 as obvious over Abramson and Feit and further in view of Prabandham. However, Prabandham teaches nothing that was lacking from Abramson and Feit as discussed above in connection with claim 11, from which claim 14 depends. Accordingly, claim 14 also distinguishes over the prior art of record for at least the reasons set forth above in connection with claim 11.

The Office further rejected claims 1-10, 15, 18, 22, and 23 under 35 USC section 103(a) as unpatentable over Abramson, Feit, and Prabandham and further in view of Ng. However, once again, independent claim 1 recites “a second computer program adapted to write to said database a copy of said HTTP session data for each said HTTP session at a designated time that is a function of a predetermined time interval since the last write to said database of http session object data for said http session”.

Accordingly, claim 1 distinguishes over the prior art for at least all of the same reasons given above in connection with independent claim 11. Ng does not disclose the teachings lacking from the other references discussed above.

Likewise, independent claim 18 recites “a second computer program adapted to write a copy of said http session data for each said http session in said database at designated times, said designated times determined as a function of at least one of (a)

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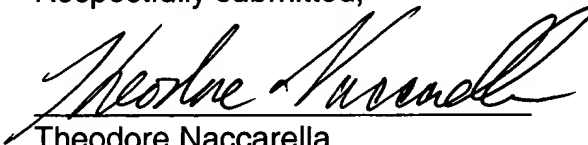
the number of times the http session object data is updated in said local memory and
(b) the number of times said http request in said http session is serviced". Accordingly,
claim 18 distinguishes over the prior art for essentially the same reasons as
independent claims 1 and 11 as discussed above.

In view of the foregoing amendments and remarks, this application is now in
condition for allowance. Applicant respectfully requests the Examiner to issue a Notice
of Allowance at the earliest possible date. The Examiner is invited to contact
Applicant's undersigned counsel by telephone call in order to further the prosecution of
this case in any way.

Respectfully submitted,

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